

SNS Diagnostics AP Requirements

Device	Location	Intensity [ppp]	Range	Accuracy	Resolution	Rate to console	Data structure
BPM (position)	MEBT-to-HEBT	5e10-2e11	+/- 0.5*apert	+/-1mm	+/- .5mm	8 ms	inside mini pulse
	Ring-RTBT	5e10-2e14	+/- 1-60 mm?	+/- 1 mm	0.15 mm	8 ms	turn-by-turn
BPM (phase)	MEBT-to-HEBT	5e10-2e11	+/- 180 deg	+/-5 deg	0.5 deg	8 ms	
IPM Wire	Ring	5e10-2e14	+/- 1-100 mm		1mm		turn-by-turn
	MEBT-to-CCL	5e10-2e11	+/- 5mm		0.2mm	60s	
	SCL	5e10-2e11	+/- 5mm		0.2mm	60s	
	HEBT	5e10-2e11	+/- 5mm		0.2mm	60s	
Harp	Ring-RTBT	5e10-2e14	+/- 1-100?				
	MEBT-to-HEBT	5e10-2e11					
	RTBT	5e10-2e14					
Misc. profile	D-plate	5e10-2e11					
	Ring	5e10-2e14					
BLM	MEBT-to-CCL	1e5-2e11	0.02 rem/h	10% ?	1nA	8 ms	mini pulse?
	SCL-to-HEBT	1e5-2e11	0.1 rem/h	10% ?	1nA	8 ms	mini pulse?
	Ring-RTBT	1e7-2e14	0.1 rem/h	10% ?	100nA	8 ms	turn-by-turn?
FBLM	MEBT-to-CCL	1e5-2e11	0.02 rem/h				inside mini pulse
	SCL-to-HEBT	1e5-2e11	0.1 rem/h				inside mini pulse
	Ring	1e7-2e14	0.1 rem/h				intra turn
Current	MEBT-to-HEBT	5e10-2e11	0 - 52 mA	0.5mA	0.05mA	8 ms	inside mini pulse
	Ring-RTBT	5e10-2e14	0.05-100A	1 mA ?	10 mA ?		turn-by-turn
Phase width	HEBT	5e10-2e11	0 - 600ps	15ps (5deg)	15ps (5deg)	8 ms	
Tune	Ring	5e10-2e14		+/- 0.01			
Beam-in-gap	HEBT	2e6-2e11	0 - 0.1mA	20%?	5mkA	8 ms	turn-by-turn
	Ring	2e9-2e14	0 - 0.1 A	20%?			
Emittance	MEBT	5e10-2e11		10%			
	D-plate	5e10-2e14		10%			
e - detectors	Ring	1e13-2e14	2e8 - 2e11 (e-)	5%	1e8 (e-)	8 ms	turn-by-turn
WCM	Ring	5e10-2e14	0.05-100A	1%	10 mA ?	8 ms	turn-by-turn
WB BPM	Ring	5e10-2e14	+/- 1-60 mm?	+/-1 mm	0.5 mm	8 ms	turn-by-turn

Comments**questions**

every quad/doublet, dual plane
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three planes (H, V, 45 deg.)
three planes
three planes; each cryo.
three planes
three planes
after DTL?

video fluorescence
foil video

fast; not calibrated
fast; not calibrated
fast; not calibrated

tune kicker/pick-up share with BIG?
laser neutralization
BIG kicker/monitor
H & V
H & V

conspicuous locations
wide band measurements
wide band measurements